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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/877,002	06/11/2001	Zhe-Hong Chen	108977	1854

25944 7590 08/05/2005

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EXAMINER
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LAROSE, COLIN M

ART UNIT	PAPER NUMBER
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2623

DATE MAILED: 08/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	09/877,002	CHEN ET AL.	
	Examiner	Art Unit	
	Colin M. LaRose	2623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 26 April 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☐ Claim(s) 1-16,23-27,30-38 and 43 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-3,5-16,23,24,26,27,30-38 and 43 is/are allowed.
- 6) ☒ Claim(s) 4 and 25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>260405</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Arguments and Amendments***

1. Applicant's amendments and arguments filed 26 April 2005, have been entered and made of record.

### ***Response to Amendments and Arguments***

2. Applicant's amendments to claims 1, 3, 4, 6, 15, and 23-27 are sufficient to overcome the previous rejections under 35 USC 102. As a result, claims 1, 3, 6, 15, 23, 24, 26, and 27 are allowable for the reasons set forth below; claims 4 and 25 are rejected upon new grounds of rejection established below.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 4 and 25 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent 6,724,945 by Yen et al. ("Yen").
5. Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15. An English-language translation of Applicant's priority documents must be

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submitted in response to this action pursuant to 37 CFR 1.55(a)(4) in order to overcome this rejection.

Regarding claims 4 and 25, Yen discloses an interpolation processing apparatus/computer program (figure 1) that engages in processing on image data which are provided in a calorimetric system constituted of first~nth ( $n \geq 2$ ) color components and include color information corresponding to a single color component provided at each pixel (i.e. Yen processes RGB pixel data that has been captured using a color filter array pattern such as the Bayer pattern) to determine an interpolation value equivalent to color information corresponding to the first color component for a pixel at which the first color component is missing, comprising:

an interpolation value calculation section (26) that, by using color information at pixels located in a local area containing an interpolation target pixel (e.g. target pixel at position X – column 4, lines 25-35), calculates the interpolation value (i.e. a value for X) including, at least

(1) a local average value of the first color component with regard to the interpolation target pixel (column 4, lines 35-43: a local average  $(B+G)/2$  or  $(D+E)/2$  corresponding to the target pixel X is computed and used for interpolating the X value) and

(2) a local curvature value corresponding to the first color component with respect to the interpolation target pixel, the first color component being one of red, green or blue value in a color space (column 4, equations (1) and (2): local horizontal and vertical curvature information is calculated; these curvature values are used to determine which local average value is used to

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interpolate the X value, which is either R, G, or B in accordance with the Bayer pattern shown in figure 2 – see column 4, lines 35-43).

***Allowable Subject Matter***

6. The following is an examiner's statement of reasons for allowance:

Regarding claims 1, 3, 23, and 24, Hamilton discloses computing local curvature values for the luminance component (i.e. "horz" and "vert" in columns 5-6). However, Applicant has amended the claims to specify that local curvature values for at least two color components, *respectively*, are included in the interpolation value. Hamilton only discloses calculating the curvature values for the luminance component and does not disclose e.g. computing the curvature values for either of the chrominance components as well. Furthermore, there does not appear to be sufficient motivation or suggestion in either Hamilton or the prior art of record to modify Hamilton to calculate the curvature values for more than one color component, as claimed.

Regarding claims 6 and 26, Takahashi discloses first and second similarity judgment sections (307 and 308, respectively) that judge degrees of similarity of horizontal and vertical gradients with respect to the interpolation pixel. However, Applicant has amended the claims to specify that the similarity for each section is calculated along a "crossing" direction, and that the crossing directions for the first section are different from the crossing directions for the second section. For example, the claim calls for the first section to calculate a degree of similarity along intersecting ("crossing") directions, such as horizontal and vertical directions; then, the second

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section would calculate a degree of similarity along a different set of intersecting directions, such as two different diagonal directions. Takahashi does not disclose such a feature. Furthermore, there does not appear to be sufficient motivation or suggestion in either Takahashi or the prior art of record to modify Takahashi to calculate the degrees of similarity in two different pairs of crossing directions, as claimed.

Regarding claims 15 and 27, Lu discloses calculating an interpolation value by adding a second term multiplied by a weighting coefficient to a first term, as required by the claims (see column 5, lines 55-60). However, Applicant has amended the claims to specify that the weighting coefficient is what is “constituted of color information corresponding to a plurality of color components at pixels in the local area containing the interpolation target pixel.” Lu discloses a weighting coefficient  $\sigma$  but does not disclose any details about  $\sigma$ , including how  $\sigma$  is derived or what constitutes  $\sigma$ . Furthermore, there does not appear to be sufficient motivation or suggestion in either Lu or the prior art of record to modify Lu so that the weighting coefficient is constituted of color information...,” as claimed.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled “Comments on Statement of Reasons for Allowance.”

Claims 1-3, 5-16, 23, 24, 26, 27, 30-38, and 43 are allowed.

***Conclusion***

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Colin M. LaRose whose telephone number is (571) 272-7423. If attempts to reach the examiner by telephone are unsuccessful, the examiner's acting supervisor, Jingge Wu, can be reached on (571) 272-7429. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the TC 2600 Customer Service Office whose telephone number is (571) 272-2600.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

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applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CML

Group Art Unit 2623

2 August 2005

A handwritten signature in black ink, appearing to read 'Vikram Bali', with a large loop at the beginning and a horizontal stroke at the end.

**VIKKRAM BALI  
PRIMARY EXAMINER**